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PHASE II ENVIRONMENTAL SITE ASSESSMENT

1629 West Hovey Street Site

Date of Report: May 9, 2017

Acres: Approximately 0.17 acre

SITE BACKGROUND

Seagull Environmental Technologies, Inc. (Seagull) was tasked by the City of Springfield – Planning and Development Department to conduct a Phase II Environmental Site Assessment (ESA) of the 1629 West (W.) Hovey Street site in Springfield, Missouri. For the purposes of this Phase II ESA, the 1629 W. Hovey Street site will hereafter be referred to as the "subject property" or "site."

The Phase II ESA included collection of four soil samples (including one duplicate sample) and two groundwater samples (including one duplicate sample). The soil samples were submitted for laboratory analysis of volatile organic compounds (VOC), total petroleum hydrocarbons (TPH)–gasoline range organics (GRO)/diesel range organics (DRO)/oil range organics (ORO), polynuclear aromatic hydrocarbons (PAH), and metals regulated under the Resource Conservation and Recovery Act (RCRA). The groundwater samples were also submitted for laboratory analysis of VOCs, TPH-GRO, TPH-DRO, TPH-ORO, and RCRA metals. For evaluation purposes, the soil and groundwater sample results from this Phase II ESA were compared to their respective Missouri Risk-Based Corrective Action (MRBCA) Default Target Levels (DTL). These default values have been established by the Missouri Department of Natural Resources (MDNR) to represent protective concentration thresholds for common environmental contaminants, regardless of land use, soil properties, and relevant exposure pathways. Additionally, the soil sample results were also compared to MRBCA Tier 1 Risk-Based Target Levels (RBTL) for residential and non-residential land use (for soil type 3 [clayey]), based on the predominant subsurface soil type). Groundwater sample results were compared to MRBCA Tier 1 RBTLs for residential domestic water use and non-residential dermal contact. For the asbestos inspection, suspected ACM was sampled to quantify asbestos in the material. Paint-covered surfaces were screened with an x-ray

fluorescence (XRF) spectrometer to determine the presence and quantity of LBP. Findings and recommendations from the Phase II ESA were as follows:

Soil

Soil samples collected from the site contained low levels of contaminants. Specifically, the soil samples contained VOCs, TPH-DRO, and RCRA metals. Two VOCs were detected in the samples at concentrations that ranged from 0.015 to 0.068 mg/kg. The detected VOCs were 2-butanone and acetone, common laboratory contaminants. The detected concentrations of 2-butanone and acetone were well below its respective MRBCA DTLs. TPH-DRO was detected in one sample (SB-1-10-12) at a concentration of 10 mg/kg. The detected concentration of TPH-DRO was well below their respective MRBCA DTL.

All four soil samples (including the duplicate sample) contained detectable concentrations of five RCRA metals. Two RCRA metals ─ arsenic and lead ─ were detected at concentrations that exceeded their respective MRBCA DTLs. All samples contained arsenic above its MRBCA DTL of 3.89 mg/kg, ranging from 8.2 mg/kg at SB-2 (from 2 to 4 feet bgs) to 28 mg/kg at SB-1 Duplicate (from 10 to 12 feet bgs). Three of the detected concentrations of arsenic, in the samples collected at SB-1 (10 to 12 feet bgs), SB-1 (Duplicate), and SB-3 (0 to 2 feet bgs), were above the USGS average for arsenic in Greene County, Missouri, soils, which is 8.13 mg/kg. Due to the depth of the sample concentrations, the arsenic likely poses minimal risk to future development.

All samples contained lead above its MRBCA DTL of 3.74 mg/kg. Lead was detected between 13 mg/kg at SB-1 (from 10 to 12 feet bgs) and 18 mg/kg at SB-3 (from 0 to 2 feet bgs). None of the lead concentrations exceeded its MRBCA Tier 1 RBTLs established for residential and non-residential surface and subsurface soil, which are 260 and 660 mg/kg, respectively. Additionally, none of the detected concentration of lead were above the USGS average for lead in Greene County, Missouri, soils, which is 61.55 mg/kg. No other metals were detected at concentrations that exceeded their established MRBCA standards.

Groundwater

Groundwater samples collected from the site contained low levels of contaminants. Two groundwater samples (including one field duplicate) were collect at SB-2. Groundwater samples were not collected at SB-1 and SB-3 due to an inadequate quantity of groundwater in the temporary wells. Only one VOC, acetone, was detected in the groundwater samples at concentrations that ranged from 0.0043J to 0.0048J

mg/L. J-coded values indicate the results were estimated. The detected concentrations of acetone, a common laboratory contaminant, were well below its respective MRBCA DTL.

Four RCRA metals ─ arsenic, cadmium, chromium, and lead ─ were detected at concentrations that exceeded their respective MRBCA DTLs. Arsenic was detected in both samples at concentrations of 0.023 and 0.015 mg/L which exceeded its MRBCA DTL of 0.01 mg/L. Cadmium was detected in one sample (GW-1) at a concentration of 0.023 mg/L, which exceeded its MRBCA DTL of 0.01 mg/L. Chromium was detected in both samples at concentrations of 0.22 and 0.15 mg/L, which exceeded its MRBCA DTL of 0.10 mg/L. Lead was detected in both samples with concentrations of 0.70 and 0.28 mg/L which exceeded its MRBCA DTL of 0.02 mg/L. No other metals were detected at concentrations that exceeded their established MRBCA standards. It should be noted that the groundwater samples were not filtered; therefore, concentrations of dissolved metals are likely lower than the reported values. The detected concentrations of metals in the groundwater samples likely pose minimal risk to future use for this site, especially considering that groundwater in the site vicinity is not used for drinking water. If the four RCRA metals detected in groundwater are not naturally occurring, their source is unknown; however, no release of RCRA metals at this site is suspected to have occurred.

Asbestos-Containing Materials

Thirty bulk material samples were submitted to Quantem for analysis of asbestos. Three materials associated with the residence were determined to contain asbestos. Specifically, the materials determined to contain asbestos were beige floor tile in a hallway, beige floor tile in the bathroom, and roofing tar for the chimney joint. Those materials contained asbestos (chrysotile) at concentrations ranging up to 12 %. The EPA defines ACM as any material containing asbestos at a concentration above 1%.

Lead-Based Paint

LBP was identified on several interior components associated with the residence. Specifically, LBP was identified on the exterior siding, an exterior door and door frame, a window frame, and a kitchen door frame. XRF readings from those components ranged from 1.01 to 1.74 mg/cm^2. Overall, the identified LBP was found to be damaged. Future demolition or renovations (including abatement and disposal activities) that could disturb the LBP should be conducted in accordance with applicable local, state, and federal regulations.